Mr. Wayne Spary
Rose-Hulman Institute of Technology
5500 Wabash Avenue
Terre Haute, Indiana 47803

Re: 167-12344
Fourth Administrative Amendment to
FESOP 167-5933-00014

Dear Mr. Spary:

Rose-Hulman Institute of Technology was issued a permit on December 13, 1996 for a private school that utilizes boilers for heat. A letter requesting the addition of two (2) boilers was received on June 16, 2000. Pursuant to the provisions of 326 IAC 2-8-10 the permit is hereby administratively amended as follows:

Add the following emission units to Condition A.2 and add the requirements associated with them under Section D.3.

**1. One (1) natural gas fired boiler, rated at 13.2 million BTU per hour, utilizing low NOx burners for control, and exhausting to the existing stack.**

**2. One (1) natural gas fired boiler, rated at 6.3 million BTU per hour, utilizing low NOx burners for control, and exhausting to the existing stack.**

All other conditions of the permit shall remain unchanged and in effect. Please attach a copy of this amendment and the following revised permit pages to the front of the original permit.

This decision is subject to the Indiana Administrative Orders and Procedures Act - IC 4-21.5-3-5. If you have any questions on this matter, please contact Mr. Rob Harmon at (812) 462-3433, ext 14.

Sincerely,

George M. Needham
Director
Vigo County Air Pollution Control

Attachments
RKH

cc: Winter Bottum - IDEM-OAM
Mindy Hahn - IDEM-OAM, Permit Branch
Compliance Data Section - Karen Nowak
Administrative and Development - Janet Mobley
Technical Support and Modeling - Michele Boner

# FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP)

# OFFICE OF AIR MANAGEMENT and VIGO COUNTY AIR POLLUTION CONTROL

**Rose-Hulman Institute of Technology**
**5500 East Wabash Ave.**
**Terre Haute, Indiana 47803**

(herein known as the Permittee) is hereby authorized to operate subject to the conditions contained herein, the facilities listed in Section A (Source Summary) of this permit.

This permit is issued in accordance with 326 IAC 2 and 40 CFR Part 70 and contains the conditions and provisions specified in 326 IAC 2-8 and 40 CFR Part 70.6 as required by 42 U.S.C. 7401, et. seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments) and IC 13-15 and IC 13-17 (prior to July 1, 1996, IC 13-1-1-4 and IC 13-7-10).

| Operation Permit No.: F167-5933-00014 | |
|---|---|
| Issued by:<br>George M. Needham, Director<br>Vigo County Air Pollution Control | Issuance Date:<br><br>December 16, 1996 |

First Administrate Amendment, 167-8299, issued on April 27, 1998 (Page(s) Affected: 28)
Second Administrative Amendment, 167-11689, issued on January 10, 2000 (Page(s) Affected: None)
Third Administrative Amendment, 167-11800, issued on February 15, 2000 (Page(s) Affected: None)

| Fourth Administrative Amendment: 167-12344 | Pages Affected: 28a |
|---|---|
| Issued by:<br>George M. Needham, Director<br>Vigo County Air Pollution Control | Issuance Date: |

**SECTION D.3 FACILITY OPERATION CONDITIONS**

**Facility Description [326 IAC 2-8-4(10)]:**

**1. One (1) natural gas fired boiler, rated at 13.2 million BTU per hour, utilizing low NOx burners for control, and exhausting to the existing stack.**

**2. One (1) natural gas fired boiler, rated at 6.3 million BTU per hour, utilizing low NOx burners for control, and exhausting to the existing stack.**

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

**Emission Limitations and Standards [326 IAC 2-8-4(1)]**

D.3.1 Particulate Matter Limitation (PM) [326 IAC 6-2-3]

Pursuant to 326 IAC 6-2-3 particulate matter emissions from the boilers shall not exceed 0.360 pounds per million BTU. This limitation was determined as follows:

Pt = 1.09 / Q^0.26 with: Pt = Pounds of particulate matter emitted per million BTU heat input
Q = Total source maximum operating capacity rating in million BTU per hour.

**Record Keeping and Reporting Requirements [326 IAC 2-8-4(3)] [326 IAC 2-8-16]**

D.3.2 NSPS Record Keeping Requirements [40 CFR 60.48c]

(a) Pursuant to 40 CFR 60.48c(g) the Permittee shall record and maintain records of the amounts of each fuel combusted each day.

(b) Pursuant to 40 CFR 60.48c(i) all records required under this regulation shall be maintained by the Permittee for a period of two years following the date of such record.

D.3.3 NSPS Reporting Requirements

Pursuant to 40 CFR 60.48c(a) the Permittee shall submit notification of the date of construction or reconstruction, anticipated startup, and actual startup, as provided by 40 CFR 60.7. This notification shall include:

(a) The design heat input capacity of the affected facility and identification of fuels to be combusted in the affected facility.

# Indiana Department of Environmental Management
# Office of Air Management
# and
# Vigo County Air Pollution Control

# Technical Support Document (TSD) for a for an Administrative Amendment to a Federally Enforceable State Operating Permit (FESOP)

## Source Background and Description

**Source Name:** Rose-Hulman Institute of Technology
**Source Location:** 5500 Wabash Ave., Terre Haute, Indiana 47803
**County:** Vigo County
**SIC Code:** 8221
**Operation Permit No.:** F 167-5933-00014
**Operation Permit Issuance Date:** December 13, 1996
**Administrative Amendment No.:** F 167-12344-00014
**Permit Reviewer:** Rob Harmon - VCAPC

**Vigo County Air Pollution Control (VCAPC) has reviewed an application from Rose-Hulman Institute of Technology relating to the** construction and operation of the following emission units**.**

1. **One (1) natural gas fired boiler, rated at 13.2 million BTU per hour, utilizing low NOx burners for control, and exhausting to the existing stack.**

2. **One (1) natural gas fired boiler, rated at 6.3 million BTU per hour, utilizing low NOx burners for control, and exhausting to the existing stack.**

## History

**On June 16, 2000, Rose-Hulman Institute of Technology submitted an application to VCAPC requesting to add two (2) additional boilers existing site. Rose-Hulman Institute of Technology was issued a FESOP permit on December 13, 1996.**

## Existing Approvals

**The source was issued a FESOP Permit F167-5933-00014 on December 13, 1996. The source has since received the following:**

**(a) First Administrative Amendment No.:167-8299, issued on April 27, 1998;**

**(b) Second Administrative Amendment No: 167-11689, issued on January 10, 2000; and**

**(c) Third Administrative Amendment No.: 167-11800, issued on February 15, 2000.**

## Enforcement Issue

**There are no enforcement actions pending.**

## Recommendation

**The staff recommends to the Commissioner that the Administrative Amendment be approved. This recommendation is based on the following facts and conditions:**

**Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.**

**An application for the purposes of this review was received on June 16, 2000,**

## Emission Calculations

**See Appendix A of this document for detailed emissions calculations (Page 1 of 1).**

## Potential To Emit of the Modification

**Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as "the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA." The existing source is already subject to federally enforceable limitations in their FESOP permit.**

| Pollutant | Potential To Emit (tons/year) |
|---|---|
| PM | 0.16 |
| PM-10 | 0.65 |
| $SO_2$ | 0.05 |
| VOC | 0.47 |
| CO | 7.17 |
| $NO_x$ | 4.27 |

**Note: For the purpose of determining Title V applicability for particulates, PM-10, not PM, is the regulated pollutant in consideration.**

**(a) The potential to emit (as defined in 326 IAC 2-1.1-1(16)) of no pollutant is equal to or greater than 100 tons per year. Therefore, the source is not subject to the provisions of 326 IAC 2-7.**

**(b) Since the PTE of the project is below 10 tons per year for each criteria pollutant it can be added to the existing FESOP through and Administrative Amendment.**

## Limited Potential to Emit of the Modification

**The table below summarizes the total potential to emit, reflecting all limits, of the significant emission units.**

| | Limited Potential to Emit (tons/year) | | | | | | |
|---|---|---|---|---|---|---|---|
| **Process/facility** | **PM** | **PM-10** | **$SO_2$** | **VOC** | **CO** | **$NO_x$** | **HAPs** |
| **Existing Limited PTE (FESOP)** | **9.45** | **4.55** | **59.60** | **0.57** | **6.42** | **18.83** | **---** |
| **Addition of two (2) boilers** | **0.16** | **0.65** | **0.05** | **0.47** | **7.17** | **4.27** | **---** |
| **Total Emissions** | **9.61** | **5.20** | **59.65** | **1.04** | **13.59** | **23.10** | **---** |

**Since the total source emissions are still effectively limited below 100 tons per year the addition can be processed without altering any of the current limitations in the FESOP.**

### Justification for Modification

The FESOP permit is being modified through an Administrative Amendment. This approval is being performed pursuant to 326 IAC 2-8-10(a)(15) which states that an Administrative Amendment is the appropriate approval for modifications that incorporate certain NSPS including 40 CFR 60.40c (which is the small industrial steam generating unit NSPS).

## County Attainment Status

**The source is located in Vigo County.**

| Pollutant | Status |
|---|---|
| PM-10 | attainment |
| $SO_2$ | maintenance |

| | |
|---|---|
| $NO_2$ | attainment |
| Ozone | attainment |
| CO | attainment |
| Lead | attainment |

(a) Volatile organic compounds (VOC) and oxides of nitrogen (NOx) are precursors for the formation of ozone. Therefore, VOC and $NO_X$ emissions are considered when evaluating the rule applicability relating to the ozone standards. Vigo County has been designated as attainment or unclassifiable for ozone.

**Federal Rule Applicability**

(a) The 13.2 million BTU per hour boiler is subject to the New Source Performance Standard, 326 IAC 12, (40 CFR 60.40c, Subpart Dc).

Pursuant to 40 CFR 60.48c (Reporting and recordkeeping requirements) the following requirements apply to the 13.2 million BTU per hour boiler:

40 CFR 60.48c(a) requires: The permittee shall submit notification of the date of construction or reconstruction, anticipated startup, and actual startup, as provided by 40 CFR 60.7. This notification shall include:

1. The design heat input capacity of the affected facility and identification of fuels to be combusted in the affected facility.

40 CFR 60.48c(g) requires: The permittee shall record and maintain records of the amounts of each fuel combusted during each day.

40 CFR 60.48c(i) requires: All records required under this section shall be maintained by the permittee for a period of two years following the date of such record.

(b) The 6.3 million BTU per hour boiler is not subject to the New Source Performance Standard, 326 IAC 12, (40 CFR 60.40c, Subpart Dc) because it only applies to boilers that are between 10 million BTU per hour and 100 million BTU per hour.

(c) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs)(326 IAC 14 and 40 CFR art 63) applicable to this source.

**State Rule Applicability - Individual Facilities**

326 IAC 6-2-4 (Particulate Emission Limitations for Sources of Indirect Heating)

Pursuant to 326 IAC 6-2-4 particulate matter emissions from boiler Temp shall not exceed 0.360 pounds per million BTU. This limitation was determined as follows:

Pt = 1.09 / Q^0.26 with: Pt = Pounds of particulate matter emitted per million BTU heat input

Q = Total source maximum operating capacity rating in million BTU per hour. This was determined to be 71.05 million BTU per hour by adding the existing units with all currently proposed units. Those are Boiler #1 (18.75 MMBTU/Hr), Boiler HWB-1 (8.4 MMBTU/Hr), Boiler HWB-2 (8.4 MMBTU/Hr), Boiler #4 (12.5 MMBTU/Hr), 3.5 MMBTU/Hr, 13.2 MMBTU/Hr and 6.3 MMBTU/Hr.

A comparison of the allowed emission rate as determined above to the estimated emission rate that is presented in Appendix A indicates that the 13.2 million BTU per hour boiler should be able to comply with this limitation.

## Air Toxic Emissions

**Indiana presently requests applicants to provide information on emissions of the 188 hazardous air pollutants (HAPs) set out in the Clean Air Act Amendments of 1990. These pollutants are either carcinogenic or otherwise considered toxic and are commonly used by industries. They are listed as air toxics on the Office of Air Management (OAM) Part 70 Application Form GSD-08.**

**None of the listed air toxics will be emitted from this source.**

## Conclusion

**The operation of these new boilers shall be subject to the conditions of the attached Administrative Amendment Permit No. F 167-12344-00014.**

**Rose Hulman Institute of Technology**
**5500 Wabash Ave., Terre Haute, Indiana 47803**
**167-12344-00014**
**Application Received: June 16, 2000**
**Reviewer: Rob Harmon - VCAPC**

**Natural Gas Combustion Only**
**Small Industrial Boilers**
**One (1) 13.2 MMBTU/Hr Boiler and One (1) 6.3 MMBTU/Hr Boiler**

| Combined Heat Input Capacity MMBtu/hr | Potential Throughput MMCF/yr |
|---|---|
| 19.5 | 170.8 |

| | Pollutant | | | | | |
|---|---|---|---|---|---|---|
| | PM* | PM10* | SO2 | NOx | VOC | CO |
| Emission Factor in lb/MMCF | 1.9 | 7.6 | 0.6 | 50.0 **see below | 5.5 | 84.0 |
| Potential Emission in tons/yr | 0.16 | 0.65 | 0.05 | 4.27 | 0.47 | 7.17 |

*PM emission factor is filterable PM only. PM10 emission factor is condensable and filterable PM10 combined.

**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

**Methodology**

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu

Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).